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Canyon Fuel Company, LLC
A Subsidiary of Arch Western Bituminous Group, LLC.

Sufco Mine
Kenneth E. May
General Manager
597 South SR24
Salina, Utah 84654
(435) 286-4400
Fax (435) 286-4499

August 13, 2013

RECEIVED
AUG 14 2013
DIV. OF OIL, GAS & MINING

Permit Supervisor
Utah Coal Regulatory program
Utah Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
PO Box 145801
Salt Lake City, UT 84114-5801

Re: Response to Deficiencies Associated with the Waste Rock Disposal Site Subsoil Pile As-Builts, Task ID#4368

Dear Sirs:

Please find enclosed with this letter an amendment to the Sufco Mine Permit address deficiencies associated with the Waste Rock Disposal Site Subsoil Pile As-Builts. We have included three redline/strike out copies of the text and 3 copies of the maps associated with this amendment. A fourth copy has been included for the Forest Service should it be necessary for them to review this amendment.

R645-301-121.100 and 121-200
The text has been revised to include soils taken to the waste rock site associated with the construction of the mine site water tank. Since we are new to Sufco permit, we do not feel comfortable revising text concerning soil volumes until we become more familiar with the text and the site.

R645-301-231.400
Additional information has been added to the Waste Rock Disposal Site text in Section 3 that pertains to the volumes of topsoil and subsoil stored at the Waste Rock Site.

R645-301-233.300
The laboratory data has been located and included for placement in Appendix 2-3

Pagination will be adjusted when clean copies are submitted.

If you have questions or need addition information please contact Vicky Miller at (435)286-4481.

CANYON FUEL COMPANY
SUFCO Mine

Vicky L Miller for

Kenneth E. May
General Manager

Encl.

cc: DOGM Correspondence File

APPLICATION FOR COAL PERMIT PROCESSING
Detailed Schedule Of Changes to the Mining And Reclamation Plan

Permittee: Canyon Fuel Company, LLC
Mine: Sufco Mine **Permit Number:** C/041/002
Title: Revisions to Waste Rock Disposal Site Subsoil Pile As-Built Drawings, Task ID# 4368

Provide a detailed listing of all changes to the Mining and Reclamation Plan, which is required as a result of this proposed permit application. Individually list all maps and drawings that are added, replaced, or removed from the plan. Include changes to the table of contents, section of the plan, or other information as needed to specifically locate, identify and revise the existing Mining and Reclamation Plan. Include page, section and drawing number as part of the description.

			DESCRIPTION OF MAP, TEXT, OR MATERIAL TO BE CHANGED
☐ Add	☐ Replace	☐ Remove	M&RP
☐ Add	☒ Replace	☐ Remove	Chapter 1, Page 1-12 in Volume 1
☐ Add	☒ Replace	☐ Remove	Chapter 2, Pages 2-14 thru 2-16 and 2-18 in Volume 1
☐ Add	☒ Replace	☐ Remove	Chapter 7, Pages 7-63, 7-64, and 7-75 in Volume 2
☐ Add	☒ Replace	☐ Remove	Plate 5-6
☐ Add	☒ Replace	☐ Remove	Waste Rock Disposal Site
☐ Add	☒ Replace	☐ Remove	Pages 3-4 thru 3-6 in Volume 3
☐ Add	☒ Replace	☐ Remove	Maps 2 and 4
☐ Add	☐ Replace	☐ Remove	
☒ Add	☐ Replace	☐ Remove	Appendix 2-3, add lab data to the back of existing information
☐ Add	☐ Replace	☐ Remove	
☐ Add	☐ Replace	☐ Remove	
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Any other specific or special instruction required for insertion of this proposal into the Mining and Reclamation Plan.

August 14, 2013

Received by Oil, Gas & Mining

RECEIVED
AUG 14 2013
DIV. OF OIL, GAS & MINING

APPLICATION FOR COAL PERMIT PROCESSING

Permit Change ☒ New Permit ☐ Renewal ☐ Exploration ☐ Bond Release ☐ Transfer ☐

Permittee: Canyon Fuel Company, LLC
Mine: Sufco Mine **Permit Number:** C/041/0002
Title: Revisions to Waste Rock Disposal Site Subsoil Pile As-Built Drawings, Task ID# 4368
Description, Include reason for application and timing required to implement:

Instructions: If you answer yes to any of the first eight (gray) questions, this application may require Public Notice publication.

☒ Yes ☐ No 1. Change in the size of the Permit Area? Acres: _____ Disturbed Area: 0.7 ☒ increase ☐ decrease.
☐ Yes ☒ No 2. Is the application submitted as a result of a Division Order? DO# _____
☐ Yes ☒ No 3. Does the application include operations outside a previously identified Cumulative Hydrologic Impact Area?
☐ Yes ☒ No 4. Does the application include operations in hydrologic basins other than as currently approved?
☐ Yes ☒ No 5. Does the application result from cancellation, reduction or increase of insurance or reclamation bond?
☐ Yes ☒ No 6. Does the application require or include public notice publication?
☐ Yes ☒ No 7. Does the application require or include ownership, control, right-of-entry, or compliance information?
☐ Yes ☒ No 8. Is proposed activity within 100 feet of a public road or cemetery or 300 feet of an occupied dwelling?
☐ Yes ☒ No 9. Is the application submitted as a result of a Violation? NOV # _____
☐ Yes ☒ No 10. Is the application submitted as a result of other laws or regulations or policies?
Explain: _____
☐ Yes ☒ No 11. Does the application affect the surface landowner or change the post mining land use?
☐ Yes ☒ No 12. Does the application require or include underground design or mine sequence and timing? (Modification of R2P2)
☐ Yes ☒ No 13. Does the application require or include collection and reporting of any baseline information?
☐ Yes ☒ No 14. Could the application have any effect on wildlife or vegetation outside the current disturbed area?
☐ Yes ☒ No 15. Does the application require or include soil removal, storage or placement?
☐ Yes ☒ No 16. Does the application require or include vegetation monitoring, removal or revegetation activities?
☐ Yes ☒ No 17. Does the application require or include construction, modification, or removal of surface facilities?
☐ Yes ☒ No 18. Does the application require or include water monitoring, sediment or drainage control measures?
☒ Yes ☐ No 19. Does the application require or include certified designs, maps or calculation?
☐ Yes ☒ No 20. Does the application require or include subsidence control or monitoring?
☐ Yes ☒ No 21. Have reclamation costs for bonding been provided?
☐ Yes ☒ No 22. Does the application involve a perennial stream, a stream buffer zone or discharges to a stream?
☐ Yes ☒ No 23. Does the application affect permits issued by other agencies or permits issued to other entities?

Please attach four (4) review copies of the application. If the mine is on or adjacent to Forest Service land please submit five (5) copies, thank you. (These numbers include a copy for the Price Field Office)

I hereby certify that I am a responsible official of the applicant and that the information contained in this application is true and correct to the best of my information and belief in all respects with the laws of Utah in reference to commitments, undertakings, and obligations, herein.

Kenneth E. May 8/13/2013
Print Name

David B. Hill Maint. Manager
Sign Name, Position, Date

Subscribed and sworn to before me this 13 day of August, 2013

Jacquelyn Nebeker
Notary Public

My commission Expires: _____, 20___ }
Attest: State of _____ } } ss:
County of _____

JACQUELYN NEBEKER
Notary Public
State Of Utah
My Commission Expires 3/24/2015
Commission# 606049

For Office Use Only:	Assigned Tracking Number:	Received by Oil, Gas & Mining
		RECEIVED AUG 14 2013 DIV. OF OIL, GAS & MINING

CHAPTER 1

GENERAL CONTENTS

4. Vertical extent of mine workings — Surface to 2,000 feet deep (Life of mine)

The anticipated total acreage to be affected during the five years of operation by underground mining activities is 1,500 acres. The estimated number of total surface acres to be affected over the entire mining operation is ~~48.432~~49.136 acres.

PERMITTED DISTURBED AREA BOUNDARY	ACTUAL AREA CURRENTLY DISTURBED TO BE RECLAIMED	SITE DESCRIPTION
30.210	17.405	Mine Site, East Spring Canyon
0.967	0.39	Spring Collection Field, Convulsion Canyon
0.220	0.075	Pump House, Convulsion Canyon
0.784	0.40	Leach Field, Convulsion Canyon
1.595	0.193	Water Tank, East Spring Canyon
0.286	0.017	3 East Portals
1.774	0.70	4 East Portals
0.302	0.017	South Portals
0.396	0.017	Quitchupah Portals
0.287	0.18	Link Canyon Substation No. 1
0.245	0.12	Link Canyon Substation No. 2
0.380	0.18	Link Canyon Portal
~~10.986~~11.690	~~10.23~~ 10.76	Waste Rock Disposal Site
0.000	0.00	North Water Mitigation Area
0.000	0.00	Quitchupah Fan and Shaft Site
~~48.432~~49.136	~~29.924~~ 30.454	Totals

The legal description of the SUFCO permit area:

Mine Site Facility, Water Tank, South Portals, Spring Collection Field, Pump House, Pipeline, Leachfield (Approximately 64.403 acres)

T. 22 S., R. 4 E., SLBM, Utah
Section 12: A Portion of the following:
E1/2NW1/4, SW1/4NW1/4NE1/4, S1/2

Portals - 3 East, 4 East, Quitchupah and Link Canyon, Link Canyon Substation No. 1 and No. 2 (Approximately 3.368 acres)

T. 21 S., R. 5 E., SLBM, Utah
Section 26: A Portion of the following:
SE1/4SW1/4SW1/4NW1/4, E1/2NW1/4NW1/4SW1/4
SE1/4NE1/4SW1/4SW1/4
Section 29: A Portion of the following:
NW1/4NW1/4SW1/4SE1/4, NE1/4NW1/4SE1/4SW1/4,
NE1/4NE1/4SE1/4SW1/4

CHAPTER 2

SOILS

from a depth of 7.5- to 12.0-inches below the surface. The Cca horizon extended from a depth of 12.0-inches to approximately 42-inches. Underlying this unit was weathered bedrock of sandstone and siltstone. A copy of the field log data sheet is included in Appendix 2-2.

Salvaged soil volumes for the disturbance related to construction of the fire water tank are based on the measured thicknesses described above of the A 1 (topsoil) horizon, underlying AC and Cca horizons (subsoils), and the cut and fill calculations provided on Figure 5-OE of Chapter 5 of this permit. The A1 horizon in the area appeared to have a maximum thickness of 6-inches. As described previously in this section, where the topsoil is less than 6-inches thick, a lift of 6-inches of topsoil and subsoil will be taken and stockpiled as topsoil. The removal of the first 6-inches of soil will be observed and measured in the field by the site construction supervisor or a trained representative. The total area where soil salvage will be performed is approximately 0.07 acres (3,049 sq ft). Based on this area, the following volumes of salvaged soils were estimated ~~calculated~~:

A1 or topsoil - maximum thickness 0.5 ft.

0.5 ft X 3,049 sq ft = 1,525 cu ft (~56 cu yds)

The volume of salvagable topsoil varied from the volume originally calculated due to large sandstone boulders present in the cut area and reduced the salvable topsoil significantly, from the estimate ~56 cu yds to 8.2 cu yds.

AC and Cca horizon - average thickness of approximately 3 ft

3 ft X 3,049 sq ft = 9,147 cu ft (~339 cu yds)*

~~* Total volumes may vary from calculated since one large sandstone boulder is present in the cut area. Actual size of the boulder is unknown at this time.~~

The topsoil will be removed first and transported for storage at the waste rock storage site. It will be signed and stored separately from other piles located at the site. The subsoils will be removed to a depth of 42-inches or to the boundary with the weathered bedrock. Approximately 109 cu yds of subsoil and weathered bedrock will be used as fill material at the water tank site. The remaining subsoils will be transported to the waste rock site and stored with the subsoils removed previously

from the minesite. Storage of the topsoil and subsoil piles will be done in accordance with Section 2.3.1.4 of this M&RP.

The topsoil removed from construction of the overflow pond and overflow pond access road will be stockpiled on a stable surface southwest of the overflow pond, see Plate 7-4A. According to Plate 2-1 the overflow pond site consists of type T soil. The A horizon is 0 to 2 inches in depth and the B horizon is 2-12 inches in depth. The topsoil stockpile will be segregated between A and B horizons. Much of the site of the overflow pond is on steep hill sides where topsoil is less then 6 inches deep. Assuming an average of 12 inches of removal the following quantities have been calculated:

0.167 ft X 49,950 sq ft = 8,342 cu ft (~309 cy) horizon A
0.833 ft X 49,950 sq ft = 41,608 cu ft (~1,541 cy) horizon B
Total 309 cy + 1,541 cy = 1,850 cy

A site specific soil survey will be completed for the Overflow Pond prior to disturbance and this information will be utilized in determining topsoil salvage depth. During topsoil removal observations and measurements in the field will be conducted by the site construction supervisor or a trained representative. Actual volume of topsoil removed and stockpiled for the Overflow Pond was 1,488 cubic yards.

During the topsoil removal operation for the temporary access road for the construction of the bypass culvert portion of the overflow pond, the total depth of soil removal will be based upon the color change between the upper most and underlying layer and the use of a tape measure. For calculation purposes, the upper layer of soils was assumed to average 12-inches. Therefore, the total material removed prior to excavating the bypass culvert trench is:

13000 sq ft X 1.0 ft = 13000 cubic feet or approximately 482 cubic yards.

The 482 yards of salvaged soils will be removed and placed adjacent to the new bypass culvert trench location. The remaining material, C2 horizon, will be excavated from the trench and temporarily stored adjacent to the excavation but not mixed with the 482 cubic yards of salvaged

soil. After the culvert is placed, the excavated C2 material will be replaced in the trench and any remaining material will be evenly spread over the disturbed trench area. The salvaged 482 cubic yards of soils will then be spread over the disturbed area. The surface will be left in a roughened state to reduce erosion. Reseeding of the area was completed in 2010.

2.3.1.2 Suitability of Topsoil Substitutes/Supplements

See Section 2.3.3.2

2.3.1.3 Testing of Topsoil Handling and Reclamation Procedures Regarding Revegetation

The Applicant will exercise care to guard against erosion during and after application of topsoil and will employ the necessary measures to ensure the stability of topsoil on graded slopes. Erosion control measures will include surface roughing and erosion mat placement on slope areas thought to be unstable. The Applicant will fill, regrade, or otherwise stabilize any rills or gullies deeper than nine (9) inches which form in areas which have been regraded and topsoiled. The areas adjacent to any rills or gullies which have been filled, regraded or otherwise stabilized, will be reseeded or stabilized accordingly.

Methods used to evaluate success of revegetation and stabilization appear in page 37 of Appendix 2-2. Erosion monitor pins will be placed on the slopes at the time of reseeding. Locations of the erosion pins will be obtained via a random number generator. The pin locations will be surveyed and revegetation analyses conducted annually following completion of reseeding, until the release of the bond.

2.3.1.4 Construction, Modification, Use, and Maintenance of Topsoil Storage Piles

The topsoil storage piles (Plate 2-1) at the SUFCO Mine in East Spring Canyon area consist of small amounts of topsoil, from the substation pad (27 cubic yards) and the area where the sediment pond (1,200 cubic yards) was constructed. The topsoil materials were segregated and stockpiled. The stockpiled materials were selectively placed in small area exemption areas within the permit area on stable surface areas below the sediment pond (0.105 acres) and on the south

not be moved or disturbed until it is required for redistribution during final reclamation. The surface of the topsoil pile will be pitted to reduce runoff and erosion. Vegetation removed during site construction, such as sage brush and other woody plants, will be placed on top of the pile.

Excess subsoil associated with construction of a run of mine coal stockpile and the West Lease portal tunnel development is stored at SUFCO Mine's ~~40-acre~~ waste rock disposal site (see Section 3.1.6 of Volume 3 of this M&RP). This material is segregated and will be available for fill during the reclamation phase of the mine site if needed. ~~About 1,100~~ A total of 756.4 cubic yards of topsoil are stored immediately west and to the east of the subsoil pile. This material represents the upper ~~24~~12 inches of topsoil removed prior to placing the subsoil. This material is stored and protected as described in Section 3.1.6 of Volume 3 of this M&RP. This topsoil is reserved to reclaim the subsoil storage area. The substation binwall has 2,160 cubic yards of subsoil material and 5,300 cubic yards of road base and there is 11,364 cubic yards subsoil material stored at the waste rock site for a total of 18,824 cubic yards that will be available for use as subsoil material during final reclamation of the minesite facilities pad site.

Refer to Appendix 2-2 and Plate 5-2B for the topsoil stockpile configuration for the lower overflow sediment pond.

2.3.2 Topsoil and Subsoil Removal

2.3.2.1 Topsoil Removal and Segregation

All topsoil thicker than 6 inches will be removed as a separate layer from the subsoil, segregated, and stockpiled separately. Topsoil less than 6 inches thick will be removed according to Section 2.3.2.3. However, in the areas of the Link Canyon Substation Nos. 1 and 2 pads, all soil will be removed and stored in one area as a single soil resource. At substation pad No. 1, the maximum projected volume of topsoil salvage based on the soil survey depth of 20 inches and the projected topsoil salvage area of 0.08 acres is 224 cubic yards. The salvaged topsoil will be removed as a separate layer, segregated and placed on the south end of the pad outslope. The remaining excavated material in the deeper cuts will be used as fill material for the access road and the north

APPENDIX 2-3

Water and Soil Data Report

Inter-Mountain Laboratories, Inc.
1673 Terra Avenue, Sheridan, Wyoming 82801
(307) 672-8945

Soil Analysis Report

Canyon Fuel Company, LLC.
397 South 800 West
Salina, UT 84654

Report ID: S1006246001

Project: Sufco Topsoil
Date Received: 6/15/2010

Date Reported: 7/8/2010
Work Order: S1006246

Lab ID	Sample ID	pH	Saturation	Electrical Conductivity	Organic Matter	PE Calcium	PE Magnesium	PE Potassium	PE Sodium	SAR
		s.u.	%	dS/m	%	meq/L	meq/L	meq/L	meq/L	
S1006246-001	Gob Pile Composite	7.3	30.1	2.82	3.9	22.2	12.2	0.31	2.02	0.49

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H20Sol= water soluble,AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate
Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential
Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor

Inter-Mountain Laboratories, Inc.
1673 Terra Avenue, Sheridan, Wyoming 82801
(307) 672-8945

Soil Analysis Report

Canyon Fuel Company, LLC.
397 South 800 West
Salina, UT 84654

Report ID: S1006246001

Project: Sufco Topsoil
Date Received: 6/15/2010

Date Reported: 7/8/2010
Work Order: S1006246

Lab ID	Sample ID	Sand	Silt	Clay	Texture	Very Fine Sand	CO3	Nitrogen Nitrate	Selenium	Boron	Available Phosphorus
		%	%	%		%	%	ppm	ppm	ppm	ppm
S1006246-001	Gob Pile Composite	76.0	15.0	9.0	Sandy Loam	11.2	16.6	1.9	<0.02	1.07	2.50

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H20Sol= water soluble,AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate
Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential
Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor

Inter-Mountain Laboratories, Inc.
1673 Terra Avenue, Sheridan, Wyoming 82801
(307) 672-8945

Soil Analysis Report

Canyon Fuel Company, LLC.
397 South 800 West
Salina, UT 84654

Report ID: S1006246001

Project: Sufco Topsoil
Date Received: 6/15/2010

Date Reported: 7/8/2010
Work Order: S1006246

Lab ID	Sample ID	Available Potassium meq/100g	Total Carbon %	TOC %	Neutral. Potential t/1000t
S1006246-001	Gob Pile Composite	0.14	12.6	10.6	167

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H20Sol= water soluble,AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate
Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential
Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Soil Analysis Report

Canyon Fuel Company, LLC.

397 South 800 West
Salina, UT 84654

Report ID: S1210370001

Project: Sufco Topsoil
Date Received: 10/22/2012

Date Reported: 12/20/2012
Work Order: S1210370

Lab ID	Sample ID	pH	Saturation	Electrical Conductivity	Organic Matter	PE Calcium	PE Magnesium	PE Potassium	PE Sodium	SAR
		s.u.	%	dS/m	%	meq/L	meq/L	meq/L	meq/L	
S1210370-001	Subsoil Pile 1	7.8	39.6	3.71	4.6	22.1	23.6	0.48	9.18	1.92
S1210370-002	Subsoil Pile 2	8.2	38.5	3.79	4.5	23.1	22.4	0.45	9.29	1.95
S1210370-003	Subsoil Pile 3	8.2	39.8	3.68	4.7	26.9	21.8	0.40	5.78	1.17

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H20Sol= water soluble,AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate
Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential
Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Soil Analysis Report

Canyon Fuel Company, LLC.

397 South 800 West
Salina, UT 84654

Report ID: S1210370001

Project: Sufco Topsoil
Date Received: 10/22/2012

Date Reported: 12/20/2012
Work Order: S1210370

Lab ID	Sample ID	Sand	Silt	Clay	Texture	Very Fine Sand	Boron	Nitrate (as N)	CO3	Phosphorus	Selenium
		%	%	%		%	ppm	ppm	%	ppm	ppm
S1210370-001	Subsoil Pile 1	39.0	30.0	31.0	Clay Loam	8.1	0.89	6.0	35.5	2.8	0.02
S1210370-002	Subsoil Pile 2	39.0	32.0	29.0	Clay Loam	6.9	1.06	4.5	37.2	2.7	<0.02
S1210370-003	Subsoil Pile 3	47.0	23.0	30.0	Sandy Clay Loam	8.2	1.29	1.6	29.8	2.6	0.03

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H20Sol= water soluble,AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate
Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential
Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage

Reviewed by: Karen A Secor

Karen Secor, Soil Lab Supervisor

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Soil Analysis Report

Canyon Fuel Company, LLC.

397 South 800 West
Salina, UT 84654

Report ID: S1210370001

Project: Sufco Topsoil
Date Received: 10/22/2012

Date Reported: 12/20/2012
Work Order: S1210370

Lab ID	Sample ID	Available Potassium meq/100g	Total Carbon %	TOC %	Total Sulfur %	T.S. AB t/1000t	Neutral. Potential t/1000t	T.S. ABP t/1000t
S1210370-001	Subsoil Pile 1	0.33	11.0	6.8	0.08	2.50	355	352
S1210370-002	Subsoil Pile 2	0.32	10.1	5.6	0.07	2.19	372	370
S1210370-003	Subsoil Pile 3	0.30	13.5	9.9	0.16	5.00	298	293

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H20Sol= water soluble,AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate
Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential
Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage

Reviewed by: Karen A Secor

Karen Secor, Soil Lab Supervisor

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Soil Analysis Report

Canyon Fuel Company, LLC.
397 South 800 West
Salina, UT 84654

Report ID: S1107066002
(Replaces S1107066001)
Date Reported: 8/11/2011
Work Order: S1107066

Project: West Lease
Date Received: 7/6/2011

Lab ID	Sample ID	pH	Saturation	Electrical Conductivity	Organic Matter	PE Calcium	PE Magnesium	PE Potassium	PE Sodium	SAR
		s.u.	%	dS/m	%	meq/L	meq/L	meq/L	meq/L	
S1107066-001	Comp 1	7.5	40.1	2.76	3.7	20.1	27.3	0.32	9.88	2.03
S1107066-002	Comp 2	7.6	37.4	3.62	5.1	22.0	32.6	0.35	11.8	2.27
S1107066-003	Comp 3	7.7	39.3	3.73	3.6	25.5	38.5	0.39	11.1	1.96
S1107066-004	Comp 4	7.8	41.2	3.06	4.2	17.7	26.4	0.36	8.68	1.85
S1107066-005	Comp 5	7.8	37.7	3.16	3.9	20.0	28.6	0.37	9.49	1.93
S1107066-006	Comp 6	7.9	39.0	2.36	4.5	11.1	18.3	0.29	6.91	1.80

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H20Sol= water soluble,AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate
Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential
Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Soil Analysis Report

Canyon Fuel Company, LLC.

397 South 800 West
Salina, UT 84654

Report ID: S1107066002
(Replaces S1107066001)

Project: West Lease

Date Received: 7/6/2011

Date Reported: 8/11/2011

Work Order: S1107066

Lab ID	Sample ID	Sand	Silt	Clay	Texture	Very Fine Sand	CO3	Selenium	Boron	Nitrate (as N)	Phosphorus
		%	%	%		%	%	ppm	ppm	ppm	ppm
S1107066-001	Comp 1	29.0	36.0	35.0	Clay Loam	2.2	29.3	0.05	0.98	23.4	5.90
S1107066-002	Comp 2	32.0	35.0	33.0	Clay Loam	4.6	31.7	0.05	1.08	25.8	5.94
S1107066-003	Comp 3	28.0	37.0	35.0	Clay Loam	4.8	37.0	0.07	0.66	38.4	5.08
S1107066-004	Comp 4	30.0	35.0	35.0	Clay Loam	3.5	36.1	0.06	0.80	30.5	4.40
S1107066-005	Comp 5	32.0	35.0	33.0	Clay Loam	3.8	36.7	0.03	0.82	12.8	5.34
S1107066-006	Comp 6	35.0	36.0	29.0	Clay Loam	3.0	36.6	<0.02	0.86	8.9	5.79

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H20Sol= water soluble,AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate
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Lab ID	Sample ID	Available Potassium meq/100g	Total Carbon %	TOC %	Total Sulfur %	T.S. AB t/1000t	Neutral. Potential t/1000t	T.S. ABP t/1000t
S1107066-001	Comp 1	0.21	6.7	3.2	0.09	2.73	293	290
S1107066-002	Comp 2	0.20	7.7	3.9	0.07	2.17	317	315
S1107066-003	Comp 3	0.19	7.1	2.7	0.05	1.60	370	368
S1107066-004	Comp 4	0.20	7.9	3.5	0.06	1.94	361	359
S1107066-005	Comp 5	0.20	8.6	4.2	0.04	1.39	367	365
S1107066-006	Comp 6	0.19	8.4	4.0	0.02	0.57	366	365

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H20Sol= water soluble,AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate
Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential
Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage

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Karen Secor, Soil Lab Supervisor

CHAPTER 7

HYDROLOGY

3 East portals, and Quitchupah portals have sediment control consisting of routing runoff from disturbed areas into the mine with berms and insloping. The runoff is then treated using in mine settling ponds prior to discharge through approved UPDES points. The disturbed area associated with the South portals is 0.017 acre. The disturbed area associated with the 3 East portals is 0.017 acre. The disturbed area associated with the Quitchupah portals is 0.017 acre. A calculation demonstrating the insignificance of the inflow of surface water into the mine is included in Appendix 7-16.

During construction of the new overflow pond sediment from the disturbed area will be controlled by the use of containment berms and silt fencing.

Several alternate sediment control areas are defined within the mine site and are listed below (see Plates 5-2B,C,D,E,&F):

- The original substation pad area and fire water tank above the office building. The sediment controls include a graveled pad area and silt fences. The disturbed area is 0.324 acre.

- The topsoil stockpile near the mine site primary sedimentation pond. The sediment control consists of containment berms and silt fencing. The disturbed area is 0.105 acre.

- The topsoil stockpile near the mine site overflow pond. The sediment control consists of containment berms and silt fencing. The disturbed area of the overflow pond topsoil stockpile is 0.141 acres.

- The subsoil, topsoil and sedimentation pond topsoil stockpiles at the waste rock disposal site. The sediment controls include containment berms and silt fencing. The disturbed area of the subsoil and topsoil stockpiles is ~~0.51~~1.24 acre. The disturbed area of the pond topsoil pile is 0.293 acre.

- The area above the mine fan in East Spring Canyon. The sediment control consists of silt fencing. The disturbed area is 0.122 acre.

- The pump house in Convulsion Canyon. The sediment control consists of containment berms and silt fencing. The disturbed area is 0.075 acre.

- The leach field in Convulsion Canyon. The sediment control consists of containment berms and silt fencing. The area is fenced to prevent grazing. The disturbed area is 0.40 acre.

- The new substation pad disturbed area is 0.287 acre. The sediment controls include gravel and silt fences.

- The 4 East portal site consists of a pad area where a mine fan has been built. The disturbed area associated with the two portal openings at this site is 0.70 acre.

Alternate sediment control at this pad consists of a containment berm, gravel and silt fencing.

- The Link Canyon Substation No. 1 facility disturbed area is 0.18 acre. This substation pad area was reclaimed in 2000. The sediment control consists of containment berms, silt fencing, and vegetation.
- The Link Canyon Substation No. 2 facility disturbed area is 0.12 acre. The sediment control consists of containment berms, gravel and silt fencing.
- The Link Canyon Portal facility disturbed area is 0.18 acre. The sediment control consists of containment berms, gravel and silt fencing.

The total area for Alternate Sediment Control Areas (ASCA) is ~~3.437~~4.167 acres. This is approximately ~~12.1~~13.6 percent of ~~29.924~~ 30.454 acres of total disturbed area at the mine site, Link Canyon Portal and Substation No. 1 and No. 2 facility sites, and waste rock disposal site (including ASCA's and SAE's).

7.4.2.2 Siltation Structures

General Requirements. Additional contributions of suspended solids and sediment to stream flow or runoff outside the permit area are being prevented to the extent possible using various siltation structures.

The existing siltation structures for the main facilities area, the concrete sediment trap and primary sedimentation pond, were not constructed before beginning coal mining operations. The structures were constructed upon implementation of applicable State and Federal Regulations. The overflow pond was constructed to allow for continued compliance with State and Federal Regulations. The sedimentation pond for the waste rock disposal site was constructed before the site was used. Each structure has been certified by a qualified registered professional engineer.

All siltation structures which impound water have been designed, constructed and maintained as described in Chapter 5 and Sections 7.3.3 and 7.4.3.

Siltation structures are also provided at the mine-water discharges points. Water is presently being discharged from the mine at UPDES discharge point 003 from the Quitchupah Canyon breakouts.

- The water tank area northeast of the mine site. This area is classified as an "Exempt Area". The demonstration for this area is a SEDCAD computer program and is located in Appendix 7-16. The disturbed area is 0.193 acre.

The total disturbed area contributing to the primary sedimentation pond is 15.88 acres. The total disturbed area contributing to the overflow pond is 16.49 acres. The total disturbed area contributing to the waste rock disposal site sedimentation pond is 7.93 acres. The total area for Small Area Exemption (SAE) is 0.623 acres. This is ~~2.2~~2.1 percent of ~~29.924~~ 30.454 acres of total disturbed area at the mine site, Link Canyon Portal and Substation No. 1 and No. 2 facility sites, and waste rock disposal site (including ASCA's and SAE's).

7.4.2.3 Diversions

General Requirements. The diversions within the permit area consist of drainage ditches and culverts. All diversions within the permit area have been designed to minimize adverse impacts to the hydrologic balance, to prevent material damage outside the permit area and to assure the safety of the public.

All diversions and diversion structures have been designed, located, constructed, maintained and used to:

- Be stable
- Provide protection against flooding and resultant damage to life and property
- Prevent, to the extent possible, additional contributions of suspended solids to stream flow outside the permit area
- Comply with all applicable local, state, and federal laws and regulations

All diversions within the permit area are temporary and will be removed when no longer needed. The diversions will be reclaimed in accordance with the reclamation plan defined in Chapter 5.

Peak discharge rates from the undisturbed and disturbed area drainages within the permit area were calculated for use in determining the adequacy of the existing diversion ditches and culverts. The storm runoff calculations for the temporary diversion structures were based on the 10-year, 6-hour precipitation event of 1.3 inches. Curve numbers were based on those defined in Appendix 7-9 and professional judgement. A description of the methods used to determine the peak discharge rates

VOLUME 3

WASTE ROCK DISPOSAL SITE

3.1.5 Acid and Toxic Forming Materials

Based on analyses of material that has been placed in the waste rock disposal site to date, no acid forming problems are anticipated. There is a potential for borderline toxicity problems from boron. Samples of the waste material will be collected ~~quarterly~~ for every 10,000 tons deposited at the waste rock site ~~when the site is receiving material~~ and will be analyzed for acid or toxic forming potential. All identified potential acid or toxic forming materials will be buried or otherwise treated.

Copies of laboratory reports on toxicity/acid-base accountability from representative waste samples are included in Volume 8 of the M&RP prior to 2005 and starting in 2005 will be included in the annual report.

3.1.6 Subsoil Stockpile

Excess subsoil material and a small amount of topsoil from the minesite is stockpiled at the Waste Rock Disposal Site for possible use during final reclamation of SUFCO minesite facilities. The location of the subsoil and topsoil material is shown on Map 2. Total acreage of the subsoil stockpile and associated topsoil piles 1A and 1B is 1.19 acres. Approximately 11,364 cubic yards of subsoil material and approximately 8.2 cubic yards of minesite topsoil material are stockpiled at the site. The associated original topsoil pile 1B and new topsoil piles 2 and 3 removed from the subsoil stockpile area contains about 756.4 cubic yards. The top 24 inches of soil material was removed from the subsoil stockpile area as described in Section 3.1.2, Site Preparation. This topsoil was stored along the westerly boundary and east of the subsoil stockpile as shown on Map 2. Topsoil handling procedures complied with those described in Section 3.2.3, Topsoil Handling. These topsoil stockpiles will be stored and seeded using the grasses and forbes of the standard seed mix, Table 4.6.1-1. When the subsoil and minesite topsoil are removed the topsoil will be redistributed and the area reclaimed and seeded in accordance with sections 4.5 and 4.6.

Subsoil material was placed in 2-3 ft. lifts using dump trucks and a D-7 Cat dozer. Exterior slopes of the subsoil stockpile are approximately 1v:1.25h. At this slope the material will be stable as placed. The subsoil stockpile was seeded using the grasses and forbes of the standard seed mix, Table 4.6.1-1. This subsoil may be taken to the minesite and used for fill material during final reclamation of the minesite.

Run off from the subsoil and associated topsoil stockpiles is collected and routed through a silt fence treatment located as shown on Map 2. The total acreage of the five stockpiles is 1.24 acres. Alternate sediment control measures are in place as described above. This area is classified as an approved Alternate Sediment Control Area (ASCA).

Topsoil and Subsoil Storage Piles at Waste Rock Disposal Site

TOPSOIL			
Description	Volume (cy)[(a)]	Area (acres)	Distribution Location
1A	8.2	1.19*	Mine Site
1B	456.9	0*	Waste Rock
2	161.4	0.03	Waste Rock
3	138	0.02	Waste Rock
Sediment Pond	634.9	0.293	Waste Rock
Lift # 4 Area**	1847	0.34	Waste Rock
TOTAL	3246.2	NA	NA
SUBSOIL			
Subsoil	11,260	0*	Mine Site

(a) Estimated Quantity

* The acreages for Piles 1A,1B and Subsoil are combined

** Topsoil stored in piles on top of Lift #4, estimated depth of stored topsoil - 3.5 feet

3.2 Components of Operation

3.2.1 Sedimentation Pond

A sedimentation pond was constructed down gradient from the rock fill area to control sediment removed from the disturbed areas by surface runoff. The pond was constructed prior to disturbing any other areas of the site. It will remain in place until the waste rock disposal area has been completely reclaimed.

The pond consists of an excavated storage basin. Suitable material removed from the excavation was used to construct an embankment on the downstream perimeter of the excavation to yield a maximum storage depth in the pond of 5.70 feet.

The embankment has a top width of l0 feet, a minimum height of 6.8 feet with exterior side slopes of 2.5h:lv. The bottom of the pond was constructed at an elevation of 7885.00 feet.

In accordance with Section 73-5-12 of the Utah Code Annotated 1953, before commencing construction of the sediment pond for the project, written notice was given to the State Engineer, Division of Water Rights.

The embankment and excavated pond area was grubbed of all organic material and the topsoil removed and stored for future use. It is estimated that 24 inches of topsoil was removed from the area.

The top 9 inches of the grubbed and stripped area for sediment pond embankment construction was scarified and recompacted to 90 percent of the maximum dry density as determined by ASTM D1557 procedures. Moisture content during compaction was maintained at -1 to +3 percent of the optimum as determined by ASTM D1557.

Embankment fill material was placed in horizontal lifts not exceeding nine inches in thickness prior to compaction. Embankment material was compacted to at least 90 percent of the maximum dry density as determined by ASTM D1557. Embankment material was free of organic material, and had a plasticity index as determined by ASTM D423 and D424 of not less than five. Waste rock was not used for embankment fill for the settling pond.